Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Previously presented) A method of visually representing user behavior within an interactive voice response (IVR) system of a call processing center, in which the IVR system generates user prompts, including a first prompt generated upon entry of a user into the IVR system, and subsequent prompts triggered by data inputted by a user or by internal processing of the IVR system that cause a branching in a call flow within the IVR system, said method comprising the steps of:

generating and storing a complete sequence of events within the IVR system for plural calls to the call processing center, the plural calls being recorded from end to end;

modeling a call flow of the IVR system as a non-deterministic finite-state machine, such that a start state of the finite-state machine represents a first prompt of the IVR system, other states of the finite-state machine represent subsequent prompts at which a branching occurs in the call flow of the IVR system, exit conditions are represented as end states, and transitions of the finite-state machine represent transitions between call flow states triggered by data inputted by a user or by internal processing of the IVR system;

providing the complete sequences of events for the plural calls to the finite-state machine to produce a two-way matrix of several counters, such that:

for states with at least one child or subsequent state, there are provided state-transition counters, and for exit states, there are provided counters representing exit conditions from the IVR system, separating different levels of automation achieved; and

visually representing data from the two-way matrix as a state-transition diagram having states representing IVR system prompts and arcs representing user responses to the prompts or actions initiated by the IVR system.

2. (Original) A method according to Claim 1, wherein each node of the state-transition diagram represents one of a specific prompt in the call flow of the IVR system, a prompt with re-prompts and retries, and a complete subsection of the IVR system, which represents many different prompts.

3. (Original) A method according to Claim 1, wherein exit conditions in the state-transition diagram are represented by leaves, each of the leaves indicating one of a call resolved in the IVR system, a call transferred to a live agent, and a caller hanging up without obtaining useful information.

4. (Previously presented) An apparatus for visually representing user behavior within an interactive voice response (IVR) system of a call processing center, in which the IVR system generates user prompts, including a first prompt generated upon entry of a user into the IVR system, and subsequent prompts triggered by data inputted by a user or by internal processing of the IVR system that cause a branching in a call flow within the IVR system, said apparatus comprising:

means for generating and storing a complete sequence of events within the IVR system for plural calls to the call processing center, the plural calls being recorded from end to end;

means for modeling a call flow of the IVR system as a non-deterministic finite-state machine, such that a start state of the finite-state machine represents a first prompt of the IVR system, other states of the finite-state machine represent subsequent prompts at which a branching occurs in the call flow of the IVR system, exit conditions are represented as end states, and transitions of the finite-state machine represent transitions between call flow states triggered by data inputted by a user or by internal processing of the IVR system;

means for providing the complete sequences of events for the plural calls to the finite-state machine to produce a two-way matrix of several counters, such that:

for states with at least one child or subsequent state, there are provided state-transition counters, and

for exit states, there are provided counters representing exit conditions from the IVR system, separating different levels of automation achieved; and

means for visually representing data from the two-way matrix as a state-transition diagram having states representing IVR system prompts and arcs representing user responses to the prompts or actions initiated by the IVR system.

5. (Original) An apparatus according to Claim 4, wherein each node of the state-transition diagram represents one of a specific prompt in the call flow of the IVR system, a prompt with re-prompts and retries, and a complete subsection of the IVR system, which represents many different prompts.

6. (Original) An apparatus according to Claim 4, wherein exit conditions in the state-transition diagram are represented by leaves, each of the leaves indicating one of a call resolved in the IVR system, a call transferred to a live agent, and a caller hanging up without obtaining useful information.

7. (Previously presented) A system for visually representing user behavior within an interactive voice response (IVR) system of a call processing center, in which the IVR system generates user prompts, including a first prompt generated upon entry of a user into the IVR system, and subsequent prompts triggered by data inputted by a user or by internal processing of the IVR system that cause a branching in a call flow within the IVR system, said system being operable to:

generate and store a complete sequence of events within the IVR system for plural calls to the call processing center, the plural calls being recorded from end to end;

model a call flow of the IVR system as a non-deterministic finite-state machine, such that a start state of the finite-state machine represents a first prompt of the IVR system, other states of the finite-state machine represent subsequent prompts at which a branching occurs in the call flow of the IVR system, exit conditions are represented as end states, and transitions of the finite-

state machine represent transitions between call flow states triggered by data inputted by a user or by internal processing of the IVR system;

provide the complete sequences of events for the plural calls to the finite-state machine to produce a two-way matrix of several counters, such that: for states with at least one child or subsequent state, there are provided state-transition counters, and

for exit states, there are provided counters representing exit conditions from the IVR system, separating different levels of automation achieved; and

visually represent data from the two-way matrix as a state-transition diagram having states representing IVR system prompts and arcs representing user responses to the prompts or actions initiated by the IVR system.

8. (Original) A system according to Claim 7, wherein each node of the state-transition diagram represents one of a specific prompt in the call flow of the IVR system, a prompt with re-prompts and retries, and a complete subsection of the IVR system, which represents many different prompts.

9. (Original) A system according to Claim 7, wherein exit conditions in the state-transition diagram are represented by leaves, each of the leaves indicating one of a call resolved in the IVR system, a call transferred to a live agent, and a caller hanging up without obtaining useful information.

10. (Previously presented) A computer program product embodying a program for implementing a method of visually representing user behavior within an interactive voice response (IVR) system of a call processing center, in which the IVR system generates user prompts, including a first prompt generated upon entry of a user into the IVR system, and subsequent prompts triggered by data inputted by a user or by internal processing of the IVR system that cause a branching in a call flow within the IVR system, said computer program product comprising:

code for generating and storing a complete sequence of events within the IVR system for plural calls to the call processing center, the plural calls being recorded from end to end;

code for modeling a call flow of the IVR system as a non-deterministic finite-state machine, such that a start state of the finite-state machine represents a first prompt of the IVR system, other states of the finite-state machine represent subsequent prompts at which a branching occurs in the call flow of the IVR system, exit conditions are represented as end states, and transitions of the finite-state machine represent transitions between call flow states triggered by data inputted by a user or by internal processing of the IVR system;

code for providing the complete sequences of events for the plural calls to the finite-state machine to produce a two-way matrix of several counters, such that:

for states with at least one child or subsequent state, there are provided state-transition counters, and

for exit states, there are provided counters representing exit conditions from the IVR system, separating different levels of automation achieved; and

code for visually representing data from the two-way matrix as a state-transition diagram having states representing IVR system prompts and arcs representing user responses to the prompts or actions initiated by the IVR system.

11. (Original) A computer program product according to Claim 10, wherein each node of the state-transition diagram represents one of a specific prompt in the call flow of the IVR system, a prompt with re-prompts and retries, and a complete subsection of the IVR system, which represents many different prompts.

12. (Original) A computer program product according to Claim 10, wherein exit conditions in the state-transition diagram are represented by leaves, each of the leaves indicating one of a call resolved in the IVR system, a call transferred to a live agent, and a caller hanging up without obtaining useful information.

13. (Previously presented) A method of visually representing user behavior within an automated response system of a contact processing center, in which the automated response system generates user prompts, including a first prompt generated upon entry of a user into the automated response system, and subsequent prompts triggered by data inputted by a user or by internal processing of the automated response system that cause a branching in a contact flow within the automated response system, said method comprising the steps of:

generating and storing a complete sequence of events within the automated response system for plural contacts to the contacts processing center, the plural contacts being recorded from end to end;

modeling a contact flow of the automated response system as a non-deterministic finite-state machine, such that a start state of the finite-state machine represents a first prompt of the automated response system, other states of the finite-state machine represent subsequent prompts at which a branching occurs in the contact flow of the automated response system, exit conditions are represented as end states, and transitions of the finite-state machine represent transitions between contact flow states triggered by data inputted by a user or by internal processing of the automated response system;

providing the complete sequences of events for the plural contacts to the finite-state machine to produce a two-way matrix of several counters, such that:

for states with at least one child or subsequent state, there are provided state-transition counters, and

for exit states, there are provided counters representing exit conditions from the automated response system, separating different levels of automation achieved; and

visually representing data from the two-way matrix as a state-transition diagram having states representing IVR system prompts and arcs representing user responses to the prompts or actions initiated by the IVR system.

14. (Previously presented) An apparatus for visually representing user behavior within an automated response system of a contact processing center, in which the automated response system generates user prompts, including a first prompt generated upon entry of a user into the

automated response system, and subsequent prompts triggered by data inputted by a user or by internal processing of the automated response system that cause a branching in a contact flow within the automated response system, said apparatus comprising:

means for generating and storing a complete sequence of events within the automated response system for plural contacts to the contact processing center, the plural contacts being recorded from end to end;

means for modeling a contact flow of the automated response system as a non-deterministic finite-state machine, such that a start state of the finite-state machine represents a first prompt of the automated response system, other states of the finite-state machine represent subsequent prompts at which a branching occurs in the contact flow of the automated response system, exit conditions are represented as end states, and transitions of the finite-state machine represent transitions between' contact flow states triggered by data inputted by a user or by internal processing of the automated response system;

means for providing the complete sequences of events for the plural contacts to the finite-state machine to produce a two-way matrix; of several counters, such that:

for states with at least one child or subsequent state, there are provided state-transition counters, and for exit states, there are provided counters representing exit conditions from the automated response system, separating different levels of automation achieved; and

means for visually representing data from the two-way matrix as a state-transition diagram having states representing IVR system prompts and arcs representing use responses to the prompts or actions initiated by the IVR system.

15. (Previously presented) A system for virtually representing user behavior within an automated response system of a contact processing center, in which the automated response system generates user prompts, including a first prompt generated upon entry of a user into the automated response system, and subsequent prompts triggered by data inputted by a user or by internal processing of the automated response system that cause a branching in a contact flow within the automated response system, said system being operable to:

generate and store a complete sequence of events within the automated response system for plural contacts to the contact processing center, the plural contacts being recorded from end to end;

model a contact flow of the automated response system as a non-deterministic finite-state machine, such that a start state of the finite-state machine represents a first prompt of the automated response system, other states of the finite-state machine represent subsequent prompts at which a branching occurs in the contact flow of the automated response system, exit conditions are represented as end states, and transitions of the finite-state machine represent transitions between contact flow states triggered by data inputted by a user or by internal processing of the automated response system;

provide the complete sequences of events for the plural contacts to the finite-! state machine to produce a two-way matrix of several counters, such that:

for states with at least one child or subsequent state, there are provided state-transition counters, and

for exit states, there are provided counters representing exit conditions from the automated response system, separating different levels of automation achieved;

and visually represent data from the two-way matrix as a state-transition diagram having states representing IVR system prompt and arcs representing user responses to the prompts or actions initiated by the IVR system.

16. (Previously presented) A computer program product embodying a program for implementing a method of visually representing user behavior within an automated response system of a contact processing center, in which the automated response system generates user prompts, including a first prompt generated upon entry of a user into the automated response system, and subsequent prompts triggered by data inputted by a user or by internal processing of the automated response system that cause a branching in a contact flow within the automated response system, said program product comprising:

code for generating and storing a complete sequence of events within the automated response system for plural contacts to the contact processing center, the plural contacts being recorded from end to end;

code for modeling a contact flow of the automated response system as a non-deterministic finite-state machine, such that a start state of the finite-state machine represents a first prompt of the automated response system, other states of the finite-state machine represent subsequent prompts at which a branching occurs in the contact flow of the automated response system, exit conditions are represented as end states, and transitions of the finite-state machine represent transitions between contact flow states triggered by data inputted by a user or by internal processing of the automated response system;

code for providing the complete sequences of events for the plural contacts to the finite-state machine to produce a two-way matrix oil several counters, such that:

for states with at least one child or subsequent state, there are provided state-transition counters, and

for exit states, there are provided counters representing exit conditions from the automated response system, separating different levels of automation achieved; and

code for visually representing data from the two-way matrix as a state-transition diagram having states representing IVR system prompts and arcs representing user responses to the prompts or actions initiated by the IVR system.

17. (New) A method according to claim 1, wherein visually representing data from the two-way matrix as a state-transition diagram comprises visually representing values of the respective counters of the two-way matrix in the state-transition diagram.

18. (New) An apparatus according to claim 4, wherein said means for visually representing data from the two-way matrix as a state-transition diagram also visually represents values of the respective counters of the two-way matrix in the state-transition diagram.

19. (New) A system according to claim 7, being further operable to visually represent values of the respective counters of the two-way matrix in the state-transition diagram.

20. (New) A computer program product according to claim 10, wherein said code for visually representing data from the two-way matrix as a state-transition diagram comprises code for visually representing values of the respective counters of the two-way matrix in the state-transition diagram.